

REMARKS

Applicant's independent claims 1 and 7 feature a pressure relief valve that includes a valve chamber in fluid communication with an inner chamber of a beam guiding chamber and a movable valve disk configured to seal the valve chamber of the pressure relief valve when the pressure relief valve is closed and to define an annular gap when the pressure relief valve is open.

Claims 1, 4-5, 7-8, and 10-17 stand rejected under 35 U.S.C. §103(a) as being obvious in view of Shioji combined with Riedlinger. Claims 6 and 9 stand rejected as obvious over these references further combined with Weick.

The Examiner states that Shioji "discloses a relief valve but not the specific components of the valve." (Office Action Mailed March 13, 2008, page 3, first paragraph.) The Examiner then contends that "it would have been obvious...to use a pressure relief valve with a disc and pin as taught by Riedlinger in the Shioji system because this is merely a common embodiment of a pressure relief valve." (*Id.*, third paragraph.)

Later in the Office Action, in the "Response to Arguments" section, the Examiner states that "Applicant argues that Riedlinger does not provide a seal when it is closed. The Examiner respectfully notes that this is taught by the other references." (*Id.*, page 4, second paragraph.) This statement seems to imply that the Examiner concedes that Riedlinger does not disclose a pressure relief valve as recited in Applicant's independent claims. Applicant respectfully submits that the Examiner's statement that "this is taught by the other references" is not a proper basis for rejection, as it leaves Applicant in doubt as to what "other references" the Examiner is referring to. Apparently the Examiner is not referring to Shioji or Riedlinger, the only references relied upon to reject Applicant's independent claims. However, in order to advance prosecution Applicant will address the Examiner's statements at page 3 of the Office Action regarding Riedlinger, and then will address each of the other references cited by the Examiner. If the Examiner maintains this rejection, Applicant respectfully requests clarification.

Applicant respectfully submits that none of the references of record, taken alone or in combination, teaches or suggests Applicant's claimed pressure relief valve, in which a movable

valve disk is configured to seal the valve chamber of the pressure relief valve when the pressure relief valve is closed and to define an annular gap when the pressure relief valve is open.

Riedlinger et al. (US 5,895,208) disclose a reciprocating piston machine comprising a compression chamber with an inlet valve on a suction side and an outlet valve on a delivery side (cf. US 5,895,208: claim 1). In regular operation, the inlet valve opens to let the fluid to be compressed flow into the compression chamber and the outlet valve opens to let the compressed fluid leave the compression chamber. Opening of the outlet valve in regular operation is effected by means of a valve disc 12 abutting against a valve seat in the closed state and being raised relative to the valve seat in the open state (cf. US 5,895,208: col. 4, lines 17 to 45; fig. 1).

The pressure relief provided by the outlet valve disclosed by Riedlinger et al. is not provided by the valve disc 12 as such, but instead by a capillary passage 19 that extends through the valve disc (cf. US 5,895,208: col. 4, lines 46 to 53; fig. 1). The capillary passage 19 forms a continuously open pressure relief opening. Consequently, the "pressure relief valve" known from Riedlinger et al. is always in the open state and is never closed. Unlike Applicant's claimed moveable valve disc, the moveable valve disc known from Riedlinger et al. is not configured to seal the valve chamber, and in fact never has a sealing effect.

Thus, the outlet valve does not include "a movable valve disk configured to seal the valve chamber of the pressure relief valve when the pressure relief valve is closed and to define an annular gap when the pressure relief valve is open" and thus is not a pressure relief valve that is "opened ... when the overpressure within the beam guiding chamber exceeds a critical overpressure" (cf. Applicant's specification: page 2, first section, last sentence). Accordingly, Riedlinger does not supply a teaching or suggestion of this important safety feature of Applicant's claimed invention.

Nor do the "other references," cited by the Examiner but not relied upon to reject claims 1 and 7, disclose the structural details of Applicant's claimed pressure relief valve.

Weick et al. (US 5,811,753; relied upon in the rejection of claims 6 and 9) does not disclose a pressure relief valve at all, nor does it appear that Weick is cited to provide such a disclosure. Weick discloses a laser machine tool having a beam delivery tube 4 (cf. US 5,811,753: fig. 1) or a bellows 25 (cf. US 5,811,753: fig. 2) which is filled with air having a defined CO₂ content. The air is fed into the beam delivery tube 4/bellows 25 by means of an air

feed device 12, 12a. The air leaves the interior of the beam delivery tube 4/bellows 25 via an outlet hole 32, 32a which is provided with an adjustable outlet filter 33, 33a (cf. US 5,811,753: col. 4, lines 15 to 52 and fig. 1; col. 5, lines 25 to 42 and fig. 2). The delivery tube 4/bellows 25 is continuously flushed and, consequently, the adjustable outlet filter 33, 33a is permanently open. There is no pressure relief valve which is switched alternatively between an open or in a closed state depending on the internal pressure in the beam delivery tube 4/bellows 25.

Weick (US 6,018,135 - listed in the "Notice of References Cited") discloses a laser processing machine which has a gas chamber connected to a gas compensating chamber. The arrangement consisting of the gas chamber and the gas compensating chamber forms a sealed system without any valve (cf. US 6,018,135: col. 2, lines 24 to 59).

Gortler et al. (US 6,399,916 and US 6,495,795 - both listed in the "Notice of References Cited") disclose three embodiments of a laser beam guidance system. Figure 1 of each of these references shows a casing 18 filled with gas and having an inlet 20 and an outlet 22. The outlet 22 is provided with a pressure relief valve (cf. US 6,399,916: col. 2, lines 20 to 28 and fig. 1; US 6,495,795: col. 2, lines 27 to 36 and fig. 1). The pressure relief valve is said to be in the form of a controllable valve 32a (cf. US 6,399,916: col. 2, lines 34 to 53 and fig. 2; US 6,495,795: col. 2, lines 42 to 61 and fig. 2). There are no structural details disclosed with respect to the pressure relief valves used.

Lambert (US 6,538,232) discloses a laser processing machine having a scavenging subassembly to flush the surface of an optical element which is provided for guiding the laser beam. A pressure relief valve is not mentioned at all.

Because none of these references supplies that which is lacking in Shioji, i.e., a disclosure of a pressure relief valve having a movable valve disk configured to seal the valve chamber of the pressure relief valve when the pressure relief valve is closed and to define an annular gap when the pressure relief valve is open, the Examiner has not established *prima facie* obviousness. Accordingly, Applicant respectfully requests that the rejection be withdrawn.

Applicant respectfully submits that dependent claims 6 and 9 are patentable for at least the above reasons.

Applicant : Martin Lambert
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Respectfully submitted,

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/Celia H. Leber/
Celia H. Leber
Reg. No. 33,524

Fish & Richardson P.C.
225 Franklin Street
Boston, MA 02110
Telephone: (617) 542-5070
Facsimile: (617) 542-8906

21921192.doc